Engineering Interpretations

Soil Features

This table gives estimates of several important soil features which are used in land use planning that involves engineering considerations. Soil features which are covered include information about restrictive layers (example: bedrock), subsidence, potential for frost action, and risk of corrosion for uncoated steel or for concrete. This information is based on many soil borings and observations made during the soil mapping process.

RESTRICTIVE LAYER - Kinds of restrictive features vary across the state. The kind or type of restriction relates to a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly reduce the movement of water and air through the soil or that otherwise provide an unfavorable root environment. Cemented layers, dense layers, abrupt or stratified layers, strongly contrasting textures, and dispersed layers are examples of soil layers that are restrictions.

Restriction hardness and thickness have a significant impact on the ease of mechanical excavation. Use excavation difficulty classes to evaluate the relationships of restriction layers to excavations. For example if bedrock is soft, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

SUBSIDENCE - Subsidence potential is the maximum possible loss of surface elevation from the drainage of wet soils having organic layers or semi-fluid mineral layers. Estimates of the depth of subsidence (in inches) that takes place soon after drainage (initial subsidence) and after oxidation (total subsidence) are given for soils that are likely to subside.

POTENTIAL FROST ACTION - This is the likelihood of upward or lateral movement of soil by the formation of segregated ice lenses (frost heave) and the subsequent loss of soil strength upon thawing. The following classes are used in regions where frost action is a potential problem: (1) Low -- soils are rarely susceptible to the formation of ice lenses, (2) Moderate -- soils are susceptible to the formation of ice lenses, resulting in frost heave and subsequent loss of soil strength, and (3) High -- soils are highly susceptible to the formation of ice lenses, resulting in frost heave and subsequent loss of soil strength.

RISK OF CORROSION - Various metals and other materials corrode when on or in the soil, and some metals and materials corrode more rapidly when in contact with specific soils than when in contact with others. Corrosion ratings are given for two of the common structural materials, uncoated steel and concrete. The risks of corrosion classes are low, moderate, and high.

This subsection includes:

- **(a) Soil Features**